

REMARKS

(1) Summary of the Office Action

Claims 1 – 31 were originally pending in the subject application.

In response to the Examiner's Requirement for election of species, mailed April 23, 2001, the applicant elected the species illustrated in Figures 2g, 3e, 5a – 5e, 6a – 6e. Claims 1–8, 11-20 and 22-30 were believed to read on the elected species. In the Office Action mailed July 9, 2001, the Examiner accordingly withdrew claims 9, 10, 21 and 31 from further consideration as being drawn to a non-elected species.

Further, in the Office Action mailed July 9, 2001 claims 1-8, 11-20 and 22-30 were rejected, for a variety of reasons. Notwithstanding the withdrawal of claims 9 and 10, Claims 1-19 and 30 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specific objections were made in respect of claims 1, 7, 12 and 17.

Claims 1-8, 11, 13, 17-20, 23-30 were rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,626,083 to Saxton in view of United States Patent No. 4,686,907 to Woollam et al. In addition, claims 12, 14-16, 22 were rejected under 35 U.S.C. 103(a) as being unpatentable over the above references and further in view of United States Patent No. 4,807,722 to Jamrozy.

(2) Claim Rejections - 35 U.S.C. 112 (2nd paragraph)

(a) Claims 1 and 30: AAR Plate 'C'

The Examiner has objected to the use of the "AAR plate C" designation used to identify the car profile, contending that the AAR plate C profile changes over time. The applicant respectfully disagrees with the examiner on this point for the following reasons.

First, the reference to AAR plate 'C' is claim language that has previously been allowed by this very Examiner in an application by this very inventor, specifically in claim 14 of U.S. Pat. No. 6,237,506, which issued on 29 May 2001 from Ser. No. 09/457,615. The applicant submits that claim language allowed in that case is also allowable in this case.

Second, the applicant is unaware of any reference supporting the Examiner's assertion

that the AAR plate profiles are subject to change over time. The Examiner bears the onus of establishing grounds for such a rejection. The Examiner has not cited any reference supporting the contention that the AAR plate profiles change over time, and as such has not discharged that burden. In that light, the applicant submits that the Examiner has not established grounds supporting this rejection of claim 1 or claim 30 under 35 USC 112.

As far as the applicant is aware, although new plates are introduced from time to time, there does not seem ever to have been a change in plate 'C', or any of the other AAR plates. As far as the applicant is aware, the various plate designations are understood to be permanent. The applicant would be most interested in any reference that the Examiner may be able to cite to the contrary.

Thirdly, notwithstanding this, even if the AAR plate C profile were to change from time to time as the Examiner suggests, the meaning of a patent claim is to be interpreted according to the state of the art or tests, standards or measurements established in the art as of the claim date: *Quantum Corporation v. Rodime PLC*, 851 F. Supp. 1382 ("*the meaning which the inventor gives to his words can not be made to depend upon subsequent events, but should appear when the application is filed*"). Therefore, the meaning of the AAR plate C profile as defined on the claim date is fixed. Consequently, the applicant again submits that the Examiner has not established a ground of rejection under 35 USC 112 with respect to claim 1 or claim 30.

The applicant has enclosed a photocopy of AAR Plate 'C', taken from p.76 of the 1980 *Car and Locomotive Cyclopedia*, (Simmons-Boardman, Omaha, 1980) for the Examiner's convenience. Also enclosed for the Examiner's convenience is a copy of page 73 of the 1980 *Cyclopedia* indicating the 98 inch vertical limit on the center of gravity relative to top of rail.

(b) Claim 7

The Examiner has objected to the phrase "when loaded with lumber having a density of up to 1740 lbs per 1000 board feet, has a center of gravity falling with a range whose upper limit is 98 inches above top of rail" on the basis that it is unclear as to which specific structure the applicant refers. This limit is noted in the background of the invention at page 3, lines 34 to 36 and corresponds to the vertical limit noted at p. 73 of the 1980 *Cyclopedia*, cited above. The *Cyclopedia*, in its various editions, is widely regarded as the pre-eminent rail road reference in North America. The applicant submits that a person skilled in the art would be familiar with the *Cyclopedia*, in its various editions, and as such would have no difficulty in understanding the meaning of the terms of claim 7.

Further, the applicant respectfully brings to the Examiner's attention, the applicant's Voluntary Amendment of May 23, 2001 whereby claim 7 was amended as shown below.

7. (Amended) The center beam rail road car of claim 2 wherein, when loaded with lumber having a density of up to 1740 lbs. per 1000 board feet, said center beam rail road car has a center gravity falling within a range whose upper limit is 98 inches above top of rail.

(c) Claim 12

In the context of claim 12, the Examiner states: "it is unclear which particular rail structure applicant is referring to." The applicant has indicated that the lading support structure is carried at least 42 inches above top of rail. "Top of rail" is the universal datum for railcar vertical dimensions in North America, as indicated, for example, in the photocopy of AAR Plate 'C' at p. 76 of the 1980 *Cyclopedia*, cited above, and enclosed herewith (and also in plates B, E and F) and in the center of gravity vertical height limit on p. 73, also as cited above. These are standard terms, well understood in the rail road industry as demonstrated by their use in the *Cyclopedia*. The applicant submits that as such persons skilled in the art would have no difficulty in understanding the language or meaning of claim 12.

(d) Claim 17

Claim 17 has been amended to define the load limit height as the vertical distance measured between the medial structure and the upper beam assembly, and to remove unnecessary wording.

(3) **Claim Objections under 35 U.S.C. 103(a) – Obviousness - Law**

(a) Basic Requirements of a *Prima Facie* Case of Obviousness

Section 2142 of the Manual of Patent Examining Procedure (MPEP) states:

ESTABLISHING A *PRIMA FACIE* CASE OF OBVIOUSNESS

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable

expectation of success must both be found in the prior art and not based on the applicant's disclosure. *In re Vaeck*, 947 F. 2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

...

- (b) *In re Fine*, 837 F.2d 1071, 350, 5 USPQ 2d 1596 (C.A.F.C. 1992) states:

"The PTO has the burden under section 103 to establish a *prima facie* case of obviousness. See *In re Piasecki*, 745 F.2d 1468, 1471-72, 223 USPQ 785 (Fed. Cir. 1984) It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. *In re Lalu*, 747 F.2d 703, 705; 223 USPQ 1257, 1258 (Fed. Cir. 1984) ... [Other references omitted] ... This it has not done. The Board points to nothing in the cited references, either alone or in combination, suggesting or teaching Fine's invention."

And further:

"Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art". *In re Keller*, 642 F.2d 413; 208 USPQ 871 (CCPA 1981). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination". *ACS Hosp. Sys.*, 732 F.2d at 1577, 221 USPQ at 933. And "teachings of references can be combined only if there is some suggestion or incentive to do so." *Id.* Here, the prior art contains none."

- (c) Must Have Teaching, Suggestion, or Incentive

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention *absent some teaching, suggestion or incentive* supporting the combination *ACS Hospital Systems Inc. v. Montefiore Hospital*, 732 F. 2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir.).

Cited in *In re Geiger*, 815 F.2d at 688, 2 USPQ 2d at 1268 (Fed. Cir. 1987) (Emphasis added).

Obviousness cannot be established by combining references without also providing evidence of the motivating force that would impel one skilled in the art to do what the patent applicant has done (See *Ex Parte Levengood*, 28 USPQ2d 1300, 1302 (Bd. Pat. App. & Inter. 1993)).

The initial burden is on the examiner to provide some suggestion of the

desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed toward obvious subject matter, either the references must expressly or impliedly, suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex Parte Clapp*, 227 USPQ972, 973 (Bd. Pat. App. & Inter. 1985) (Emphasis added).

...

When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teachings is proper. *Ex Parte Skinner*, 2 USPQ2d 1788 (Bd. Pat. App. & Inter. 1986)."

(d) Mere Possibility of Combination is Not Sufficient

Section 2143.01 of the Manual of Patent Examining Procedure (MPEP) states:

FACT THAT REFERENCES CAN BE COMBINED OR MODIFIED IS NOT SUFFICIENT TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS

"The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)

...

(e) "Would have been obvious to one skilled in the art"

The MPEP requires that the Examiner provide an objective source to support a contention that a feature is known or obvious to one skilled in the art. An unsupported statement that a feature or combination "would have been obvious to one skilled in the art" is improper if made without support. *In re Garrett* 33 BNA PTCJ 43 (November 13, 1986).

A statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made because references relied upon teach that all aspects of the claimed invention were individually known in the art" is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ 2d 1300 (Bd. Pat. App. & Inter. 1993). See also *Al-site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ 2d 1161 (Fed. Cir. 1999) (The level of skill in the art cannot be relied upon to provide suggestion to combine references).

(f) Destruction of Function

"If proposed modifications would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

4) **Application of Law to Rejections Under 35 USC 103**

The Examiner has rejected claims 1 – 8, 11, 13, 17 – 20 and 23 – 30 under 35 USC 103 as being obvious in light of U.S. Patent 5,626,083 of Saxton in light of U.S. Patent 4,686,907 of Woollam et al. The applicant respectfully traverses all of these rejections.

Claims 1, 17, 20, 23 and 29

The applicant traverses the Examiner's rejections in respect of independent claims 1, 17, 20, 23 and 29 based on the combination of the references. In the present instance, the Examiner has not specifically identified, and the applicant has not found, any feature, description or suggestion in either of Saxton or Woollam et al., that would provide any motivation for modifying the center beam car of Saxton to include the downwardly stepped medial deck of Woollam et al.

(a) Saxton

Saxton shows a center beam railroad car 16 having a longitudinally extending center sill 24 and a pair of side sills 26. Extending upwardly from the center sill 24 between a pair of transversely extending bulkheads 30 is a center beam structure 28 which includes a top chord 56 and several upright central columns 72, 74, 76 and 78 (see Figure 4). The columns 72, 74, 76 and 78 interconnect the center sill 24 with the top chord 56. The center beam railroad car 16 also includes a floor sheet 36 which extends between the opposite ends 19 of the car. The floor sheet 36 forms a flat, straight-through deck upon which lading may be placed.

(b) Woollam et al.

Woollam et al. shows a low level freight car 14 for carrying trailers and containers in "piggy-back" fashion. The freight car 14 includes a center sill 22, side sill assemblies 34, end sill assemblies 52, 54 and a low-level freight car floor structure 42 which co-operate to define a load carrying well region for accommodating a trailer (see Figures 1 and 2). The low-level car floor structure 42 includes cross-bearer beams 44 and a load supporting platform 48, in the form of steel grating or floor plate, for receiving and supporting the rear wheels of a trailer (see col. 3, lines 10-17). The freight car 14 is also provided with articulated connectors to permit it to share trucks at both opposing ends (see col. 1, lines 53-57). Woollam et al. is not a center beam car and as such does not have a top truss assembly.

Woollam et al. is in the Wrong Field

The freight car of Woollam et al. is a well car. It is designed for intermodal use. It is not a center beam car. The applicant respectfully submits that an ordinary person skilled in the art of center beam car construction would not look to Woollam et al. to aid in the design of a decking structure for a center beam car.

Firstly, the freight car of Woollam et al. is designed to carry very different loads than those of a center beam car. An intermodal freight car carries containers or trailers. Typically, neither containers nor highway trailers can be loaded on a center beam car because of the center beam itself. Well cars, such as Woollam et al., are loaded vertically with an overhead crane. In contrast, the primary, and sometimes exclusive, purpose of a center beam car is to carry bundles of forest products such as lumber, plywood sheets, wall-board, particle board and the like. These bundles are loaded in a relatively versatile and flexible manner by fork-lift trucks that approach the car from the side. It would seem difficult, if not impossible, for a fork-lift truck to place a pallet or bundle of lumber in the well of an intermodal well car. As such, the applicant submits that given the rather great difference in function, it would be highly improbable for a person skilled in the art to look to the construction of a well car with side sills, as in Woollam et al., for an indication of deck structure suitable for use in a center beam car.

Secondly, the freight car of Woollam et al. is provided with articulated connections and shared trucks at adjacent car ends. Given the loads that a center beam car is typically intended to bear, it appears unlikely that articulated connections and shared trucks would be suitable features. A person skilled in the art of center beam construction would not tend to consider the design features of the articulated well car of Woollam et al. to be of assistance in designing a center beam car.

Thirdly, in Woollam et al., the well structure's ability to support a load comes, in part, from the fact that "...vertical loadings applied to the floor structure are transmitted laterally and shared between the side sill and center sill assemblies" (see Woollam et al. specification, col. 1, lines 47-50). Further, at col. 2, lines 48-50, the Woollam et al. specification provides that: "Because of the relatively large effective depth of the side sill assemblies 34 they possess substantial beam strength." It appears that Woollam et al. contemplated that the low-level floor structure 42 would be structurally effective when included in a freight car having relatively deep side sills. However, a center beam car with a depressed medial portion will likely not have deep side sills because such side sills would interfere with the loading operation by forklift.

(c) No Indication of Suggestion or Motivation to Combine

The Examiner bears the burden of identifying a suggestion or motivation in the references that would lead a person skilled in the art to make the combination proposed by the Examiner. The Examiner has not provided any reference pointing to such a combination, whether by way of column and line number, by Figure number, or by other means. Further, the Examiner has not provided an explanation of the knowledge of persons skilled in the art that might point to the combination proposed by the Examiner. As such the applicant submits that the Examiner has not satisfied the requirements for establishing a *prima facie* rejection under 35 USC 103, as set forth at length above. See *ACS Hospital Systems*, *supra*, *Ex Parte Clapp*, *Ex Parte Skinner*, and *In re Mills*, noted above.

Furthermore, the references themselves do not appear to suggest the combination either expressly or impliedly. Neither Saxton nor Woollam et al., taken alone or in combination, appears to provide a suggestion or motivation for modifying the Saxton center beam car by including a downwardly stepped medial decking portion.

(d) Combination of Saxton in Light of Intended Purpose

As noted above, a 35 USC 103 rejection based upon a modification of a reference that destroys the intent, purpose, or function of the invention disclosed in the reference, or references, cited by the Examiner is not proper and the *prima facie* case of obviousness cannot be made, because there would be no technological motivation for engaging in such a modification or change. To the contrary, there would be a disincentive. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

The applicant respectfully submits that modifying the center beam car of Saxton as suggested by the Examiner would appear to render it unsatisfactory for its intended purpose. That is, as described above, center beam cars are typically designed to carry wood products. These products, for instance, bundles of lumber are loaded onto the decking structure by forklifts.

The Examiner states:

“It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Saxton to include the use of a decking structure with a downwardly stepped medial portion between first and second trucks ... as taught by Woolam et al., *in order to provide a rigid structure floor assembly with low deflection characteristics* thereby increasing the safety level of the car.” (Emphasis added).

As previously explained, it appears that Woollam et al. contemplated that the low-level floor structure 42 would be structurally effective when included in a freight car that has relatively, deep side sills. Woollam comments:

- (1) At col. 1, lines 43 – 50:

“Suitable end frame structures ensure that buff and draft forces applied to the center sill end portions are in part transmitted to the side sills and hence *shared between the latter and the center sill* while at the same time vertical loadings applied to the floor structure are transmitted laterally and shared between the side sill and center sill assemblies.” (Emphasis added)

- (2) At col. 2, lines 41 – 50, in part:

“A pair of side sill assemblies 32, ... extend the full length of center sill 22 ... Each side sill assembly includes a straight top side tube 34 of rectangular section, which is connected at spaced intervals by tapered vertical side posts 36 to bottom side angle member 38... *Because of the relatively large effective depth of the side sill assemblies 34 they possess substantial beam strength.*” (Emphasis added)

- (3) At col 3, lines 37 – 48:

“*By virtue of the configuration described, buff and draft forces are shared between the side sill assemblies and the center sill.* This force sharing need not be on a 50-50 basis; rather the force sharing ratio may be varied considerably depending on the exact design, *the main idea being to provide a structure having sufficient strength coupled with low deflection characteristics and relatively low tare weight.* The vertical loading transmitted via the trailer wheels is applied to the lateral cross-bearers and the lateral tubes and the vertical loading is thus shared between the center sill and the side sill assemblies.” (Emphasis added)

From these statements, the applicant submits that a person skilled in the art would understand that Woollam et al. viewed deep, load bearing side sills as an important feature of his design permitting the desired “*low deflection characteristics*” to which the Examiner refers.

The applicant has not found, and the Examiner has not indicated, any suggestion or motivation in either Saxton or Woollam et al. by which a person skilled in the art would divine that although Woollam et al. regards a deep side sill as being important, if not integral, to the “*low deflection characteristics*” for a well car, that nonetheless, the deep side sills should be discarded.

Alternatively, if Saxton is modified in this fashion to include the deck and side sill structure of Woollam et al., then loading with a forklift would seem to present difficulties, since the deep side sills would appear to tend to block side access to the decking structure. Accordingly, the

modified center beam car of Saxton would then seem either greatly impaired, or possibly incapable of serving its intended purpose as a center beam car. As such, the applicant submits that (a) the Examiner has not established that there is a suggestion or motivation that would prompt a person skilled in the art to make the proposed combination; and (b) even if there were, there is no indication by which a person skilled in the art would be led to ignore the comments of Woollam et al. about the sharing of the loading between the center sill and side sills and the importance of deep side sills for that purpose. On the contrary, the comments of Woollam et al. quoted above would, if anything, appear to teach away from the combination proposed by the Examiner. As such the applicant submits that *prima facie* grounds for rejection under 35 USC 103 have not been established.

- (e) AAR Plate C and Ordinary Skill in the Art.: Mounting top truss assembly at a height exceeding AAR Plate C is not an obvious design modification

Nowhere in either reference is it shown, taught or suggested that the center beam car of Saxton may be constructed with a top truss assembly which is mounted at a height exceeding AAR Plate C. To support the proposition that the combination of Saxton and Woollam et al. would have led to the invention of claim 1, the Examiner has stated that:

“The general concept of mounting a top truss assembly in a center beam railroad car at a height greater than AAR Plate C falls within the range of common general knowledge as part of obvious routine design specification...”

“In addition, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Saxton to include the use of a top truss assembly which is mounted at a height exceeding AAR Plate C in order to increase the load carrying capability of the center beam rail road car.”

However, the MPEP requires that the Examiner provide an objective source to support a contention that a features is known or obvious to one skilled in the art. In this regard, the level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161(Fed. Cir. 1999). The Examiner bears the burden of providing a reference to substantiate that which is claimed to be “common general knowledge” in the art. An mere assertion of “ordinary skill” without support is insufficient to found rejection under 35 USC 103. See *Re: Garrett*, cited above. The Examiner has provided no objective source to support this contention, and no line of reasoning as to why the artisan would have found the claimed invention to have been obvious given the teachings of the references cited by the Examiner, as required by *Levengood*. On these grounds, the applicant submits that *prima facie* obviousness under 35 U.S.C. 103(a) has not been established.

Further, the applicant respectfully submits that mounting a top truss assembly in a center beam car at a height greater than AAR Plate C is not an obvious routine design specification. As explained in the applicant's background of the invention between page 3, line 34 and page 4, line 8:

“Increased vertical loading to exceed Plate C, as in a Plate F car, may tend also to increase the height of the center of gravity of a loaded car above the allowable vertical center of gravity height limit of 98 inches measured from top-of-rail (TOR). Consequently it may be desired to drop the center portion of the deck further to once again lower the center of gravity. However, as the deck is dropped further, the deck must also become narrower to remain within the AAR design envelope, whether of Plate C or Plate F. Further still then, when the truck centers of the car exceed 46ft. 3 in., the mid-span car width must be reduced due to swing out as the car travels through corners.”

The problem of building a center beam car that exceeds Plate C is not merely one of scale. A designer cannot merely make the pieces larger, and thus arrive at a taller car – to do so would imply a wider wheelbase, as well. But the width of the wheelbase is fixed at 4' – 8 ½" for standard gauge track in North America. This width is related to the vertical of center of gravity.

As explained in the background of the invention commencing at page 3, line 34, and continuing to page 4, line 8, and noted above, the center of gravity of the loaded car must not exceed 98 inches above top of rail. Merely increasing the height of the truss might well easily raise the center of gravity beyond the 98 inch limit for a fully laden car.

To avoid having an unacceptable high center of gravity when structure is added high up on the car, it would be helpful to lower weight somewhere else. One approach is to lower the deck height, at least in part. But dropping the deck height requires narrowing the deck, because the allowable underframe profile portion of the clearance diagram of Plate C gets narrower as the deck gets lower. Further still, if the truck centers exceed 46' – 3", as is highly probable, there will be a requirement for a swing-out allowance. Contrary to the Examiner's assertion, balancing these often conflicting design criteria is a not a trivial problem. In that light, the invention of a center beam car that exceeds Plate C is a significant advance.

Conclusion pertaining to claims 1, 17, 20, 23 and 29

In summary, the Examiner bears the burden of establishing grounds for rejection under 35 USC 103. The applicant submits that the Examiner has not provided references showing all of the features of the claim. The applicant further submits that the Examiner has provided no supporting documentation by which to demonstrate that building a center beam to exceed Plate C was either a

matter of "routine" or of "ordinary skill". As such the applicant submits that a ground for rejection under 35 USC 103 has not been established.

Further, neither Saxton nor Woollam et al., considered on its own or in combination, teach, describe or otherwise suggest modifying the center beam car of Saxton such that the top truss assembly is mounted above the AAR Plate C design envelope. For the reasons outlined above, the applicant respectfully submits that neither claim 1, 17, 20, 23, nor claim 29 nor any claim dependent from them is obvious in view of Saxton and Woollam et al. As such the applicant submits that the claims are presently allowable over the cited art.

Claims 2-8, 11-16, 18, 19 and 24-28

Claims 2-8 and 11-16 ultimately depend from claim 1. Claims 18 and 19 depend from claim 17. Claims 24-28 depend from claim 23. Insofar as claims 1, 17 and 23 are presently allowable in view of the arguments submitted, the applicant submits that claims 2-8, 11-16, 18, 19 and 24-28 are also allowable. (If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Claims 5 - 8

In the context of claims 5 – 8, the Examiner has suggested that:

"It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Saxton to include the use of a medial decking portion having a length between 28 feet and 40 feet including an upwardly stepped load bearing interface that is at least 30 inches tall in his advantageous system, as floor design is a common and everyday occurrence throughout the center beam railroad car design art and ... would have been an obvious matter of design preference depending on such factors as the weight of the object to be carried by the railroad car, the yield strength of the floor material ..."

With particular reference to claim 8, while the applicant has already submitted argument concerning the combination of Woollam et al. and Saxton proposed by the Examiner, the applicant further traverses the ground of rejection quoted above. As far as the applicant is aware, drop deck center beam cars were not "*a common and everyday occurrence* throughout the railroad car design art", the step height presently claimed has (a) not previously been known in a center beam car, and (b) relates to non-trivial changes in design conception in the center

beam car. The applicant notes that the Examiner bears the burden of providing, and has not provided, supporting documentation to substantiate the contention that such design is "*a common and everyday occurrence*".

In conventional center beam rail car construction, as in Saxton, for example, the shear plate of the deck over the trucks is carried at a height corresponding to the height of the upper flange of the coupler pocket. This is usually, if not nigh universally, about 41 inches above top of rail for an unladen car with new wheels. However, if the deck is carried at this height, then to obtain a step of 30 inches or more implies a medial deck height of something less than 11 inches. Under all loading conditions the structure of the car must be at least 2 ¾" above top of rail, including the 2" deflection of the springs, and any flexure of the car body under load. This would imply a very shallow depth of deck structure, and one that would pose very significant design challenges to support the design loads, particularly given the rather narrow width of the underframe envelope at the implied height above top of rail.

By contrast, the present inventor has had the insight to realise that these design challenges can be avoided, or lessened, by raising the end deck loading interface an extra amount not linked to, typically, the height of the top flange of the coupler pocket. The feature of a step height of 30 or more inches has not previously been seen in center beam cars, as far as the inventor is aware, and reflects a conceptual difference in design from that which had gone before. Although center beam cars of various types have been constructed for roughly 30 to 40 years, the applicant is unaware of any prior car having this inventive feature. None of the art cited by the Examiner shows, describes or suggests this feature. As such, the applicant submits that claim 8 is presently allowable.

Claims 12, 14-16 and 22

The applicant respectfully traverses the rejections of independent claim 22 and dependent claims 12 and 14-16 based on the combination of Saxton and Woollam et al. as applied to claims 1-8, 11, 13, 17-20 and 23-30, and further in view of Jamrozy et al. As a preliminary matter, the applicant respectfully points out that claim 12 does not refer to, or contain, any limitations related to the side sills (i.e. a knee joining the side sills including longitudinally extending inboard and outboard flanges).

Jamrozy et al.

Jamrozy et al. describes a railroad car 20 for transporting horizontal double stacked shipping containers. Railroad car 20 has a body 24 which includes a pair of opposing longitudinal low vertical side walls 26, 28, a bottom or floor 30 and a vertically projecting bulkhead structure 32, 34 at each end of the car body (see col. 3, lines 50-55). The lower portion of each bulkhead structure 32, 34 includes a respective vertical lateral end wall 36, 38 extending between the body side walls 26, 28. A well space is defined by the two end walls 36, 38 and the two side walls 26, 28 (see col. 3, lines 64-68). Each of the car body side walls 26, 28 has a longitudinal square tubular top side sill 120 and an inverted T-shaped bottom side sill 122. The bottom side sill 122 extends for the length of the well between end walls 36, 38 and top side sills extend for the full distance between the end sill 90 which are connected thereto (see col. 5, lines 29-34).

(1) Jamrozy is in the Wrong Field

For the reasons stated above in respect of the Woollam et al. reference, the applicant respectfully submits that a person skilled in the art would not look to the design of Jamrozy et al. in designing a center beam car. The car of Jamrozy et al. is a well car. It does not have a center beam. It does not appear to be suitable for side-loading by fork lifts. It is not designed, nor presumably intended, for carrying bundles of lumber or like materials. Its fundamental structure is completely different. Its fundamental function is completely different. The Examiner has not provided any indication of a suggestion or motivation in the reference to support the combination of Jamrozy et al. with Saxton and Woollam et al.

(2) Jamrozy's Side Sill Does Not Have a Knee

The applicant traverses the Examiner's contention that: "Jamrozy et al. teaches the use of side sills with a knee joining the side sills including a longitudinally extending inboard and outboard flanges in a railroad car assembly". The railroad car of Jamrozy et al. does not have a side sill medial portion having a first depth of section and end sill portions having a second depth of section. Furthermore, missing from Jamrozy et al. is the knee that joins the side sill medial portion to the side sill end portions. Figure 1 of Jamrozy et al., a side elevational view of the railroad car, clearly shows the top side sills 120 extending for the full distance between the end sills 90 (see col. 5, line 29-34). No knee is shown in Figure 1.

In support of his contention, the Examiner has pointed to Figure 4 of Jamrozy et al. which shows a side sectional view, partially broken away, of the railroad car 20. However, Figure 4 only shows a partial view of the top side sill 120. In the region of the end wall 38, the top side sill 120

has been removed to show the vertical transition box 100 from the stub center sill 60 to the end wall 36 or 38, as the case may be. It appears that the knee that the Examiner has identified in Figure 4 is that which is formed by the vertical transition box 100. As previously stated, the side sills have no knee. The specification of Jamrozy et al. at col. 5, lines 3- 21, describes the vertical transition box 100 as follows:

“Vertically positioned transition box 100 extends downwardly from the bottom of stub sill 60 and is located along the outer surface of end wall 38, or end wall 36 for the other end of the car. Transition box has a pair of vertical spaced apart side plates 102, 104 and a forward vertical plate 106 which is laterally located relative to the car body. Forward plate 106 is joined to the forward front edges of plates 102, 104 and the top edges of plates 102, 104, 106 are joined to stub sill bottom plate 66. Directly above plate 106, but inside of stub sill 60, is positioned a vertical plate 105. Vertical braces 107 are joined to the sides of stub sill side plates 62, 64 above plate 106. The vertical inner edges of plates 102, 104 are joined to vertical plate 108 comprising part of well end wall 38. The bottom of transition member 100 is closed by horizontal plates 102, 104 and 106. The horizontal plate 110 can be integral with shear plate 130 subsequently described.”


In light of the foregoing, the applicant respectfully submits that Jamrozy et al. does not teach the claim limitations of claims 14-16 and 22 and consequently, the case for *prima facie* obviousness has not been met.

(4) **Conclusion**

In view of the foregoing arguments and claim amendments the applicant submits that the claims pending in this case are presently in a condition for allowance. Therefore the applicant requests early and favourable disposition of this application.

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Respectfully submitted,


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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Claim 17 has been amended as indicated below:

17. (Amended) A center beam rail road car having a longitudinal centerline and a pair of ends, the rail road car being supported by rail car trucks at either end thereof, said rail road car comprising:

a cargo support structure borne between the trucks, upon which cargo can be carried, said cargo support structure including a pair of first and second end structures each mounted over a respective one of said trucks, and a medial structure mounted between said trucks, said medial structure being stepped downwardly relative to said end structures;

a web assembly including an array of spaced apart posts mounted at intervals along the longitudinal centerline of the rail road car, said array extending upwardly of said cargo support structure;

an upper beam assembly surmounting said web assembly [~~-, said upper beam assembly having cantilevered wings extending laterally of said longitudinal centerline];~~

said railroad car having a load limit height defined [~~at a level measured upwardly from]~~ as the vertical distance measured between said medial structure and said upper beam assembly, and having a nominal load height that is at least as great as the largest integer multiple of 33 inches that is less than the load limit height; and

said web assembly having at least one skirt member against which loads placed laterally outward thereof can bear, said skirt member extending between a first height and a second height straddling said nominal load height.